SECURENET System "Spectra-TAC" Voting System

"SECURENET" SYSTEM FEATURES

Description	Advantages
The SECURENET system features a highly sophisticated coding or encryption technique and utilizes a very large number of	It is virtually impossible to monitor calls within a SECURENET system. Each radio is encrypted with a unique and statistically

"SPECTRA-TAC" COMPARATOR FEATURES

Description	Advantages
The comparator will accept up to 8 receiver inputs on a single channel.	Multiple receivers can be accommodated with a single comparator.
The comparator receives a status tone	Assures consistent audio levels from

SECURENET "Spectra-TAC" Voting System

Security

Encryption Type:	Digital
Coding Method:	Multi-Register Non-Linear Combiner
Number of Codes:	2.36 x 10^{21} orthogonal (unique) codes
Synchronization:	Self synchronizing (no preamble required)
Code Key Initialization:	Random
Code Key Generation:	External hand held microprocessor controlled code inserter (T3010__X)
Code Storage:	Volatile electronic memory
Number of Codes per Radio:	One*
Analog to Digital Conversion:	Continuously Variable Slope Delta Modulation (CVSD)
Voice Sample Rate:	12k bit/Sec

Receiver-Encoder

ELECTRICAL	
Power Supply:	120/240V ac, 50-60 Hz Optional battery operation with automatic switchover and battery recharge.
Timing Carrier Squelch Receiver:	Status tone is removed within 40 milliseconds after receipt of a 20 dB quieting signal.
Timing Coded Squelch Receiver:	Status tone is removed upon operation of the receiver's squelch switching circuits.
MECHANICAL	
Receiver/Encoder:	5¼" x 19" rack panel 131.25 mm x 475 mm
Enclosures:	Indoor 30" cabinet holds up to 3 receiver-encoders and a multicoupler

Receiver

	132-174 MHz		406-420 MHz 450-512 MHz	
EIA Modulation Acceptance:	± 7 kHz minimum		± 7 kHz minimum	
Selectivity—EIA SINAD:	−95 dB at ± 30 kHz −90 dB with preamp		−85 dB at ± 25 kHz −85 dB with preamp	
Oscillator Frequency Stability:	Channel element maintains oscillator frequency within ± .0005% from −30°C to +60°C ambient (+25°C reference) (± .0002% using AFC optional)		Channel element and AFC maintain oscillator frequency within ± .0002% from −30°C to +60°C ambient (+25°C reference)	
	WITHOUT PREAMP	**WITH PREAMP**	**WITHOUT PREAMP**	**WITH PREAMP**
Sensitivity—20 dB quieting:	Less than 0.5 μV	Less than 0.25 μV	Less than 0.5 μV	Less than 0.25 μV
EIA SINAD:	Less than 0.35 μV	Less than 0.175 μV	Less than 0.35 μV	Less than 0.175 μV
Intermodulation—EIA SINAD:	−80 dB	−75 dB	−80 dB	−75 dB
Spurious & Image Rejection:	100 dB minimum	95 dB minimum	100 dB minimum	100 dB minimum
Squelch Sensitivity:				
Carrier Squelch (adjustable):	0.20 μV or less at threshold	0.10 μV or less at threshold	0.25 μV or less at threshold	0.125 μV or less at threshold
Coded Squelch (fixed):	0.20 μV or less	0.10 μV or less	0.25 μV or less	0.125 μV or less
Audio Characteristics: Ref. EIA RS 204B 6dB/Oct. de-emphasis characteristics 300-3000 Hz	Telephone Line: Output: +11 dBm at 600 ohms, balanced Response: +1, −3 dB Distortion: 3% at 1000 Hz Hum & Noise −50 dB		Telephone Line: Output: +11 dBm at 600 ohms, balanced Response: +1, −3 dB Distortion: 3% at 1000 Hz Hum & Noise: −50 dB	
RF Input Impedance:	Nominal 50 ohms		Nominal 50 ohms	

*The voting system operates with only one SECURENET system at a time.

Comparator

ELECTRICAL	
Power Supply:	120/240V ac, 50-60 Hz 13.8V dc
Input Line Impedance:	600 ohms, balanced
Input Line Sensitivity:	−38 dBm for status tone −25 dBm at 100 Hz
Output Line Impedance:	600 ohms, balanced
Output Audio Level:	Adjustable, +11 dBm max.
Output Audio Response:	± 1 dB from 300 to 3000 Hz with voice transmission
Output Audio Distortion:	Less than 3% at 1000 Hz
Unselected Channel Rejection:	−50 dBm
Timing:	Initial selection within 40 milliseconds. Change of selection in less than 1 millisecond. Dropout delay adjustable, 10 seconds maximum
MECHANICAL	
Comparator Chassis:	10½" x 19" rack panel 131.25 mm x 475 mm
Comparator Capacity:	8, 16 or 24 site inputs, depending upon model.
Enclosures:	30" indoor Compa-Station cabinet (holds up to two comparator units).

System Attack Time

Carrier Squelch:	Audio is present at the output of the comparator within 80 milliseconds after receipt of a 20 dB quieted signal.
Tone-Coded Squelch:	Audio is present at the output of the comparator within 40 milliseconds after operation of the receiver's coded squelch switching circuit.

Receiver FCC Certification Numbers

132-174 MHz:	RCD-R106
406-512 MHz:	RC0080

Specifications apply to clear mode only. Performance in the coded mode has been tailored to deliver optimum intelligibility and voice recognition.

Support Services

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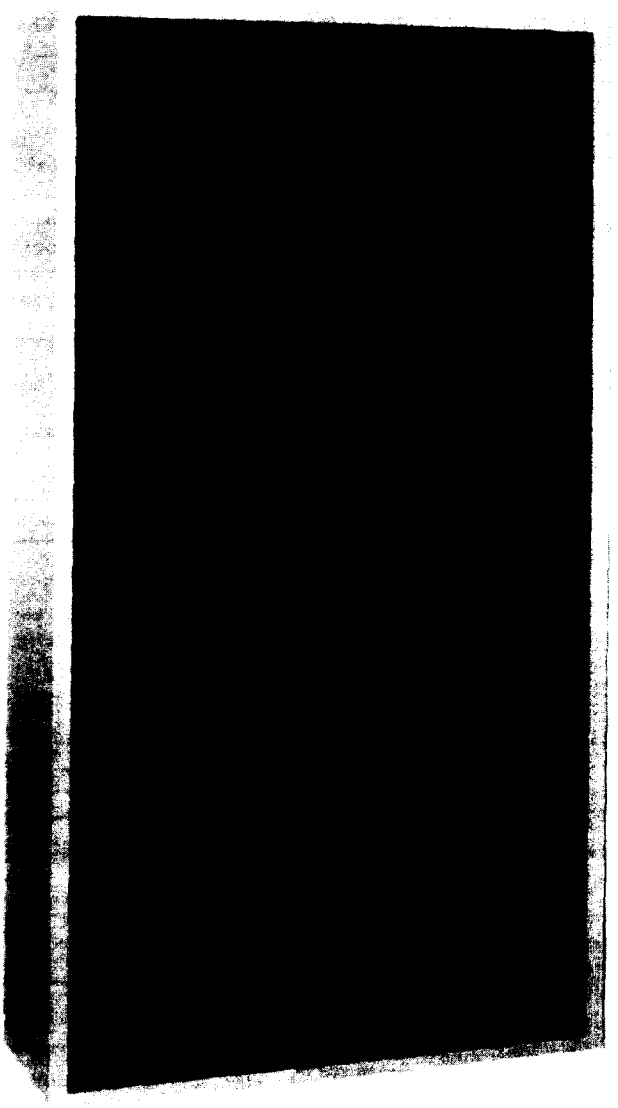
PURC Radio Link Transmitters/Repeaters

Continuous Duty



Motorola's Radio Link equipment consists of transmitters, receivers and repeaters. Stations are equipped with flat audio for both transmitter and receiver. "Digital Private-Line" coded squelch is provided to prevent co-channel interference.

Stations are capable of interfacing both the binary (FSK-NRZ) and audio signaling. The link transmitter can either be collocated with the paging terminal or at a remote location and interconnected via a phone line.

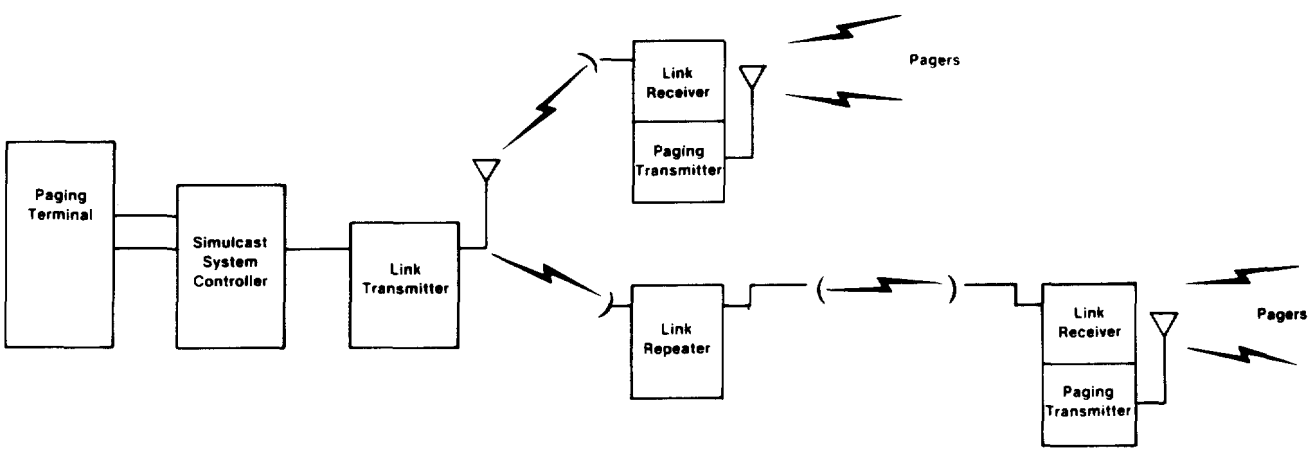
PURC Radio Link Transmitters/Repeaters

STANDARD

Description	Benefits
Advanced in every sense of the word, these stations feature: • Top performance transmitter, rated for continuous duty operation. • Advanced mechanical design featuring built-in RF shield and filtering standard on all stations.	Designed for high quality, reliable performance, these stations are built with state-of-the-art technology. The highest reliability semiconductor devices are used throughout the station. Easily accessible printed circuit board assemblies and plug-in remote control modules enhance fast, easy maintenance testing and repair.
The link station can be used for either tone or binary signaling formats. Each station can accommodate two tone, 5/6 tone AND binary FSK-NRZ codes.	The link transmitter/repeater can be used for tone only or tone and voice paging systems. This built-in flexibility enhances compatibility with almost any type of system.
100% solid state power supply provides reliable 120 VAC, 60 Hz operation with line voltage variations up to ±20%.	Provides transient protection against line surges and lightning. Power supply returns to full capacity when short or overload is removed. The supply is fully regulated to enhance stable consistent performance.
Stations are available in compact cabinets that are rugged yet attractive enough for any office environment. For outdoor applications, a weather resistant outdoor upright cabinet is available.	These vinyl covered cabinets will maintain their good appearance for years and are not subject to chipping or scratching.
Plug-in modules and standard 19-inch rack mounting are standard.	Maintenance checks and servicing are completed quickly and easily. Plug-in modules and standard size rack mounting allow for easy removal and replacement of parts, if necessary.
All link transmitters/repeaters are operated in the factory under normal operating conditions prior to shipping.	Factory pre-testing helps eliminate problems which might otherwise occur during initial operations.
"Digital Private-Line" squelch is available on all link receivers. Coded squelch circuit hears only those calls using a particular code.	Minimizes annoying message reception from other radio users on the same link channel. Link receiver hears only the desired signal, reducing "skip" interference.
A plug-in card alters audio response from the standard 6 dB per octave pre-emphasis to "flat" response.	This type of response profile is better suited to tone signaling than are pre-emphasis schemes. The danger of lost or "falsed" tones is greatly reduced.

OPTIONS

Description	Benefits
Internally mounted meter measures all essential circuits.	This option greatly simplifies station metering and tuning.
A contact closure is available to confirm proper transmitter power and audio modulation.	This feature helps provide the most efficient and reliable paging service possible today.
An internally mounted RF wattmeter is available on all models as an option.	Allows in system measurement of forward and reflected power.
A plug-in card, in conjunction with the flat audio module allows the station to automatically switch between flat and pre-emphasized audio for tone and voice paging when using 2 or 5/6 tone signaling.	Voice actuated response eliminates the need for separate phone lines for paging signaling tones and audio.
Provides automatic switching to a standby transmitter upon failure of proper transmitter power or audio modulation.	Improves system reliability and performance.



Typical system diagram employs link receivers, link transmitters and link repeaters for wide area coverage.

PURC Radio Link Transmitters/Repeaters

Performance Specifications

General

Model Series	Frequency	Watts	Squelch	AC Power Input	No. of Frequencies
C42JZB	72-76 MHz	30	"Digital Private-Line"	120V ac, 60 Hz (Optional 120/220/240V, 50/60 Hz, 12 VDC)	1
C72JZB6106		125			
Q2630 Q2628	406-420 MHz 450-512 MHz	12	"Digital Private-Line" or Carrier Squelch		
Q2631	406-420, 450-470	75			
Q2629	470-512 MHz	60			
C35JZB	928-960 MHz	10			

	30W	125W	12W	75W	60W	10W
	72-76 MHz	72-76 MHz	406-420 MHz 450-512 MHz	406-420 MHz 450-470 MHz	470-512 MHz	928-960 MHz
120V AC Current: **Standby:** **Transmit:**	 .80A 1.4A	 1.75A 6.3A	 .80A 2.1A	 .80A 6.1A		 .80A 1.3A
Weight:	150 lbs. 68 kg	200 lbs 91 kg	150 lbs 68 kg	190 lbs 86 kg		140 lbs 63 kg
Dimensions: **Standard cabinets:** **Cabinet supplied with wattmeter option:**	30.25" H × 22" W × 10" D (76 × 55 × 25 cm) 41" H × 22" W × 10" D (104 × 55 × 25 cm)	46" H × 22" W × 15" D (115 × 55 × 38 cm)	30.25" H × 22" W × 10" D (76 × 55 × 25 cm) 41" H × 22" W × 10" D (104 × 55 × 25 cm)	41" H × 22" W × 10" D (104 × 55 × 25 cm) 46" H × 22" W × 15" D (115 × 55 × 38 cm)		30.25" H × 22" W × 10" D 76 × 55 × 25 cm) 41" H × 22" W × 10" D (104 × 55 × 25 cm)
Metering:	Optional meter used to measure all essential circuits for tuning and checking.					

Link Transmitter

	72-76 MHz	72-76 MHz	406-420 MHz 450-512 MHz	406-420 MHz 450-512 MHz	928-960 MHz
RF Power Output:	30W Continuous	125W Continuous	12W Continuous	75W Continuous	10W Continuous
Output Impedance:	50 Ohms				
Spurious and harmonics emissions:	more than 85 dB below carrier				
Frequency stability: from −30°C to +60°C ambient (+25°C reference)	±5.0 ppm		±2.0 ppm		±1.0 ppm
Audio sensitivity:	*0.180V ±3 dB for 60% maximum deviation at 1000 Hz; Remote Tele*phone Line: −20 dBm max. for 60% maximum deviation at 1000 Hz				
Audio Response: (for VAR only)	+1, −3 dB from 6 dB/octave pre-emphasis, 300-3000 Hz ref. to 1000 Hz				
Flat audio response:	+1, −3 dB 250-3000 Hz, ref. at 1000 Hz				
Audio distortion:	3% at 1000 Hz		2% at 1000 Hz		
Modulation:	15F2, 16F3: ±5 kHz for 100% at 1000 Hz				

Link Receiver

	72-76 MHz	406-420 MHz 450-512 MHz	928-960 MHz	
Channel spacing:	20 kHz	25 kHz	25 kHz	12.5 kHz
EIA modulation acceptance:	±7 kHz	±7 kHz	±8 kHz	±4 kHz
Frequency stability: from −30°C to +60°C ambient (+25°C reference)	±5.0 ppm	±5.0 ppm ±2.0 ppm w/ACG	±2.0 ppm	
Sensitivity 20 dB quieting:	2.0 µV @ 900 MHz 1.5 µV @ UHF and Mid-Band			
Selectivity:	−90 dB at 20 kHz	−70 dB at 25 kHz	−80 dB at 25 kHz	−60 dB at 12.5 kHz
Intermodulation:	−75 dB	−70 dB	−75 dB	−65 dB
Spurious & Image rejection:	90 dB	100 dB	100 dB	90 dB
Squelch sensitivity Digital coded:	.25 µV or less			
Flat audio response:	Flat within ±1 dB 250-3000 Hz ref. 1000 Hz			Flat within ±2

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MOTOROLA

MSF 5000

SECURENET Capable
Base Station and Repeater
VHF 132-174 MHz

RELIABLE SOLID STATE PERFORMANCE

- Available in 6, 25, 75, 125 and 350 Watts
- Continuous Duty Operation
- 100% Solid State Performance
- Advanced Thermal Design

MAXIMUM FLEXIBILITY AND INTEROPERABILITY

- Microprocessor-Based Control
- Easily Expandable Modular Construction
- Superior Electrical Specifications
- Fully Synthesized

EASE OF SERVICE AND INSTALLATION

- Stackable Cabinet Design
- Front Panel Access for One-Side Servicing
- Major Modules Slide or Fold Out
- Side-Mount Junction Box
- Station Alarm Reporting
- Built-in Diagnostics

MSF 5000 VHF 132-174 MHz Base Station and Repeater

Performance Specifications

General

Radio Model:	C99CX			
Model Options:	**Power**	**Trunked Repeater**	**Conventional Repeater**	**Conventional Base Station**
	6 Watts	N/A	132C	133C
	25 Watts	331C	332C	333C
	75 Watts	431C	432C	433C
	125 Watts	531C	532C	533C
	350 Watts	831C	832C	833C
No. of Frequencies:	4 standard, up to 15 Frequencies optional on Conventional Stations 1 Standard on Trunked Stations			
Input Voltage:				
AC	Std. 96-132 VAC, 60 Hz Optional 50 Hz, 110/120 VAC (Reduces power output on 350 Watt station to 300 Watts)			
DC Only Operation (C32 Option)	13.8 to 16.3 VDC and 27.6 to 30.0 VDC (Not available on 350 Watt models.)			
Battery Revert (C28 Option)	11.0 to 15.5 VDC and 22.0 to 31.0 VDC (Not available on 350 Watt models.) *Output power is reduced 3dB in battery revert mode to conserve battery life.*			
Metering:	Optional interactive DMP provides 5W audio, analog metering and status display of control signals			

			Input Power (varies with options)									
			AC Line		**13.8 VDC Neg Gnd. (C32 option)**		**28 VDC Neg Gnd.**		**12 VDC (C28 option)**		**24 VDC Neg Gnd.**	
Model	**Dimensions (H x W x D)**	**Weight**	**Standby**	**Transmit**	**Standby**	**Transmit**	**Standby**	**Transmit**	**Standby**	**Transmit**	**Standby**	**Transmit**
6 Watts	26.75 x 22 x 10 in. (68.0 x 56.0 x 25.4 cm)	130 lbs. (59 kg)	60 W	80 W	25 W	50 W	N/A	N/A	25 W	40 W	N/A	N/A
25 Watts	26.75 x 22 x 10 in. (68.0 x 56.0 x 25.4 cm)	140 lbs. (64 kg)	60 W	80 W	25 W	80 W	N/A	N/A	25 W	65 W	N/A	N/A
75 Watts	26.75 x 22 x 10 in. (68.0 x 56.0 x 25.4 cm)	140 lbs. (64 kg)	80 W	300 W	40 W	50 W	0 W	200 W	40 W	50 W	0 W	135 W
125 Watts	26.75 x 22 x 10 in. (68.0 x 56.0 x 25.4 cm)	160 lbs. (73 kg)	80 W	425 W	40 W	50W	0 W	300 W	40 W	50 W	0 W	200 W
350 Watts	46†x 22 x 10 in. (117.0 x 56.0 x 25.4 cm)	300 lbs. (136 kg)	150 W	1150 W	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

NOTE: The 75, 125, and 350 Watt VHF stations utilize dual voltage (14 and 28 volt) power supplies †Does not include tip feet

Transmitter

Frequency:	132-158 MHz, 146-174 MHz		
RF Power Output Range:	**Power Level**	**With C182**	**With C265**
	125-50 Watts	75-30 Watts	100-40 Watts
	350-150 Watts	N/A	300-125 Watts
	6-3 Watts	3.5-2 Watts	4.5-2.5 Watts
	25-10 Watts	15-6 Watts	20-8 Watts
	75-35 Watts	45-20 Watts	60-28 Watts
Transmit Bandwidth:	**Frequency Range**	**Bandwidth**	
	132-158 MHz	26 MHz	
	146-174 MHz	28 MHz	
	(reduced with the addition of a duplexer or circulator option)		
Output Impedance:	50 Ohms		
Frequency Stability for temperature and voltage variation:	±0.0002% from −30°C to +60°C		
Isolation:	with C265: −20dB		
Deviation:			
Clear:	±5 kHz for 100% @1000 Hz		
Coded:	±4 kHz for 100% @ 1000 Hz		
Antenna Connectors			
Base Stations:	Type "N"		
Repeater Station:	Transmit	Type "N" Female	
	Receive	Type "N" Female	
Audio Sensitivity:	−35 dBm to +11 dBm variable		
Conducted Spurious & Harmonic Emissions	−85 dBc 132-136 MHz 125, 350 Watt models only −90 dBc 136-174 MHz		
FM Hum and Noise:	−50 dB nominal for 300 to 3000 Hz bandwidth ref. 1000 Hz tone, @ 3.0 kHz deviation		
Audio Response: (clear mode)	+1, −3 dB from 6 dB per octave preemphasis 300-3000 Hz referenced to 1000 Hz at line input		
Audio Distortion (clear mode)	Less than 2% @ 1000 Hz; @ 3.0 kHz deviation		
Emission Designators:	14K0F3E, 15K0F2D, 16K0F1D, 20K0F1E		

FCC Designation:

Transmitter Power Output in Watts	**Type Acceptance Number**	**Frequency Range in MHz**
6-3	ABZ89FC3769	132-174
25-10	ABZ89FC3765	132-174
75-35	ABZ89FC3767	132-174
125-50	ABZ89FC3764	132-174
350-450	ABZ89FC3766	132-174

The FCC Designation numbers apply toward standard 2ppm stability. Internal Ultra High Stability (2ppb stability), and External Reference

Receiver

Frequency:	132-158 MHz, 146-174 MHz
Channel Spacing:	30/25 kHz
Selectivity EIA SINAD:	−90 dB @ ±30 kHz
Receiver Bandwidth:	2.0 MHz
Receiver Sensitivity:	0.25 μV 12 dB SINAD
Off Channel Acceptance:	±3 kHz Minimum
Frequency Stability (for temp. & Volt. variation):	±0.0002% from −30°C to +60°C
Intermodulation EIA SINAD:	− 85 dB
Spurious & Image Rejection:	−100 dB
Audio Response:	+1, −3 dB from 6 dB per octave deemphasis from 400 Hz to 3000 Hz reference to 1000 Hz
Audio Distortion: (clear mode)	Less than 3% distortion at 1000 Hz
FM Hum and Noise:	−50 dB nominal for 1000 Hz tone @ 3.0 kHz deviation
RF Input Impedance:	50 Ohms
FCC Designation:	ABZ89FR3763

SECURENET Performance Specifications

Encryption Capability Type:	Securenet Digital Encryptions, DVP, DVP-XL, DES, DES-XL, DVI-XL
Encryption Method:	Non-linear combiner
Number of Keys:	8 Simplex, 4 Duplex
Synchronization:	Counter addressing or self synchronizing
Code Key Initialization:	Internally derived pseudo-random initializing vector
Digital Signalling Speed:	12 K Bit/Sec
Code Key Generation:	External handheld microprocessor controlled key inserter
Analog to Digital Conversion:	Continuously Variable Slope Delta (CVSD)

Note: EIA/TIA specifications per RS152C, RS204D, and RS220B

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MOTOROLA

MSF 5000

SECURENET Capable Base Station and Repeater UHF 403-475 MHz

MSF 5000 UHF 403-475 MHz Base Station and Repeater

Performance Specifications

General

Radio Model:	C99CX			
Model Options:	**Power**	**Conventional Base Station**	**Conventional Repeater**	**Trunked Repeater**
	6 Watts	143C	142C	N/A
	15 Watts	243C	242C	N/A
	40 Watts	343C	342C	341C
	75 Watts	443C	442C	441C
	110 Watts	543C	542C	541C
	225 Watts	743C	742C	741C

No. of Frequencies:	4 Standard, up to 15 Frequencies optional on Conventional Stations 1 Standard on Trunked Stations
Input Voltage:	
AC	Std. 96-132 VAC, 60 Hz for 6-110 Watt stations. 103-132 VAC for 225 Watt stations. Optional 50 Hz. 110/220 VAC (Reduces power output on 225 Watt stations to 200 Watts)
DC Only Operation (C32 Option)	13.8 to 16.3 VDC
Battery Revert (C28 Option)	11.0 to 15.5 VDC. Output power is reduced 3 dB in battery revert mode to conserve battery life.
Metering:	Optional interactive DMP provides 5 W audio, analog metering and status display of control signals

			INPUT POWER (varies with options)					
Model	**Dimensions (H x W x D)**	**Weight**	**AC Line**		**13.8 VDC Neg Gnd. (C32 Option)**		**12 VDC (C28 Option)**	
			Standby	**Transmit**	**Standby**	**Transmit**	**Standby**	**Transmit**
6 Watts	26.75 x 22 x 10 in. (68.0 x 56.0 x 25.4 cm)	140 lbs. (64 kg)	60 W	80 W	25 W	50 W	25 W	40 W
15 Watts	26.75 x 22 x 10 in. (68.0 x 56.0 x 25.4 cm)	140 lbs. (64 kg)	60 W	100 W	25 W	80 W	25 W	65 W
40 Watts	26.75 x 22 x 10 in. (68.0 x 56.0 x 25.4 cm)	140 lbs. (64 kg)	60 W	245 W	25 W	185 W	25 W	135 W
75 Watts	26.75 x 22 x 10 in. (68.0 x 56.0 x 25.4 cm)	160 lbs. (73 kg)	75 W	375 W	25 W	280 W	25 W	200 W
110 Watts	26.75 x 22 x 10 in. (68.0 x 56.0 x 25.4 cm)	160 lbs. (73 kg)	75 W	475 W	25 W	375 W	25 W	265 W
225 Watts	46* x 22 x 10 in. (117.0 x 56.0 x 25.4 cm)	300 lbs. (136 kg)	150 W	1100 W	65 W	850 W	40 W	550 W

*Does not include tip feet

Transmitter

Frequency:	403-435 MHz, 435-475 MHz		
RF Power Output Range:	**Standard**	**With C676**	**With C677**
	6-1 Watts	3-5 Watts	3-5 Watts
	15-7 Watts	9-5 Watts	8-4 Watts
	40-20 Watts	25-13 Watts	20-10 Watts
	75-35 Watts	45-23 Watts	40-20 Watts
	110-50 Watts	70-35 Watts	55-28
	225-110 Watts	N/A	N/A
	With C675	**With C597**	**With C182**
	4-2 Watts	3-1.5 Watts	N/A
	10-5 Watts	8-4 Watts	N/A
	30-15 Watts	22-11 Watts	N/A
	55-40 Watts	40-20 Watts	N/A
	85-60 Watts	60-30 Watts	N/A
	N/A	N/A	140-70 Watts
Transmit Bandwidth:	**Standard-8.0 MHz**		
	Power Level	**With C675**	**With C677**
	6-110 Watts	1.0 MHz	1.0 MHz
	225 Watts	N/A	N/A
	With C597	**With C182**	
	0.5 MHz	N/A	
	N/A	1 frequency only	
Output Impedance:	50 Ohms		
Frequency Stability for temp. and voltage variation:	±0.0002 % from −30°C to +60°C		
Isolation:	STD: −30 dBc @ ±25 kHz for 6-110 Watt stations STD: −20 dBc @ ±25 kHz for 225 Watt stations with C676: −70 dBc @ ±25 kHz (6-110 Watt stations only)		
Deviation:			
Clear:	±5 kHz for 100% @1000 Hz		
Coded:	±4 kHz data deviation		
Antenna Connectors			
Base Station:	Type "UHF" (6-110 Watts); Type "N" (225 Watts)		
Repeater Station:	Transmit Type "N" Receive Type "N"		
Audio Sensitivity:	−35 dBm to +11 dBm variable Conventional −20 dBm to +11 dBm variable Trunked		
Conducted Spurious & Harmonic Emissions:	−90 dBc		
FM Hum and Noise:	−50 dB nominal for 300 to 3000 Hz bandwidth ref. 1000 Hz tone @3.0 kHz deviation		
Audio Response: (clear mode)	+1, −3 dB from 6 dB per octave preemphasis 300-3000 Hz referenced to 1000 Hz at line input		
Audio Distortion: (clear mode)	Less than 2% @ 1000 Hz; @ 60% of full voice deviation		
Emission Designators:	14K0F3E, 15K0F2D, 16K0F1D, 20K0F1E		

FCC Designation:	**Transmitter Power Output in Watts**	**Type Acceptance Number**	**Frequency Range in MHz**
	6-1	ABZ89FC4750	403-475
	15-7	ABZ89FC4749	403-475
	40-20	ABZ89FC4748	403-475
	75-35	ABZ89FC4747	403-475
	110-50	ABZ89FC4744	403-435
	225-110	ABZ89FC4746	403-475

The FCC Designation numbers apply toward standard 2 ppm stability, Internal Ultra High Stability (2 ppb stability,) and External Reference

Receiver

Frequency:	403-435 MHz, 435-475 MHz				
Channel Spacing:	25 kHz				
Selectivity EIA SINAD:	−100 dB @ ±25 kHz				
Receive Bandwidth:	**Standard—2.0 MHz**				
Power Level	**With C675**	**With C677**	**With C597**	**With C182**	
6-110 Watts	1.0 MHz	1.0 MHz	0.5 MHz	N/A	
225 Watts	N/A	N/A	N/A	0.05 MHz	
Receiver Sensitivity:	0.35 µV 12 dB Sinad.	0.5 µV 20 dBQ			
Off Channel Acceptance:	±2 kHz Minimum				
Frequency Stability (for temp & voltage variation):	±0.0002% from −30°C to +60°C				
Intermodulation EIA SINAD:	−90 dB				
Spurious & Image Rejection:	−110 dB				
Audio Characteristics: (clear mode)	+1, −3 dB from 6 dB per octave deemphasis 400 to 3000 Hz bandwidth at line output ref. 1000 Hz tone				
Audio Distortion: (clear mode)	Less than 3% distortion at 1000 Hz				
FM Hum and Noise:	−50 dB nominal for 300 to 3000 Hz bandwidth ref. 1000 Hz tone @ 60% full system deviation				
RF Input Impedance:	50 Ohms				
FCC Designation:	Band	Designation Number			
	403-435 MHz	ABZ89FR4729			
	435-475 MHz	ABZ89FR4632			

SECURENET Performance Specifications

Encrypted Capability Type:	Securenet Digital Encryptions DVP, DVP-XL, DES, DES-XL, DVI-XL
Encryption Method:	Non-linear combiner
Number of Keys:	8 Simplex, 4 Duplex
Synchronization:	Counter addressing or self synchronizing
Code Key Initialization:	Internally derived psuedo-random initializing vector
Digital Signalling Speed:	12 K Bit/Sec
Code Key Generation:	External handheld microprocessor controlled key inserter
Analog to Digital Conversion:	Continuously Variable Slope Delta (CVSD)

Note: EIA/TIA specifications per RS152C, RS204D and RS220B

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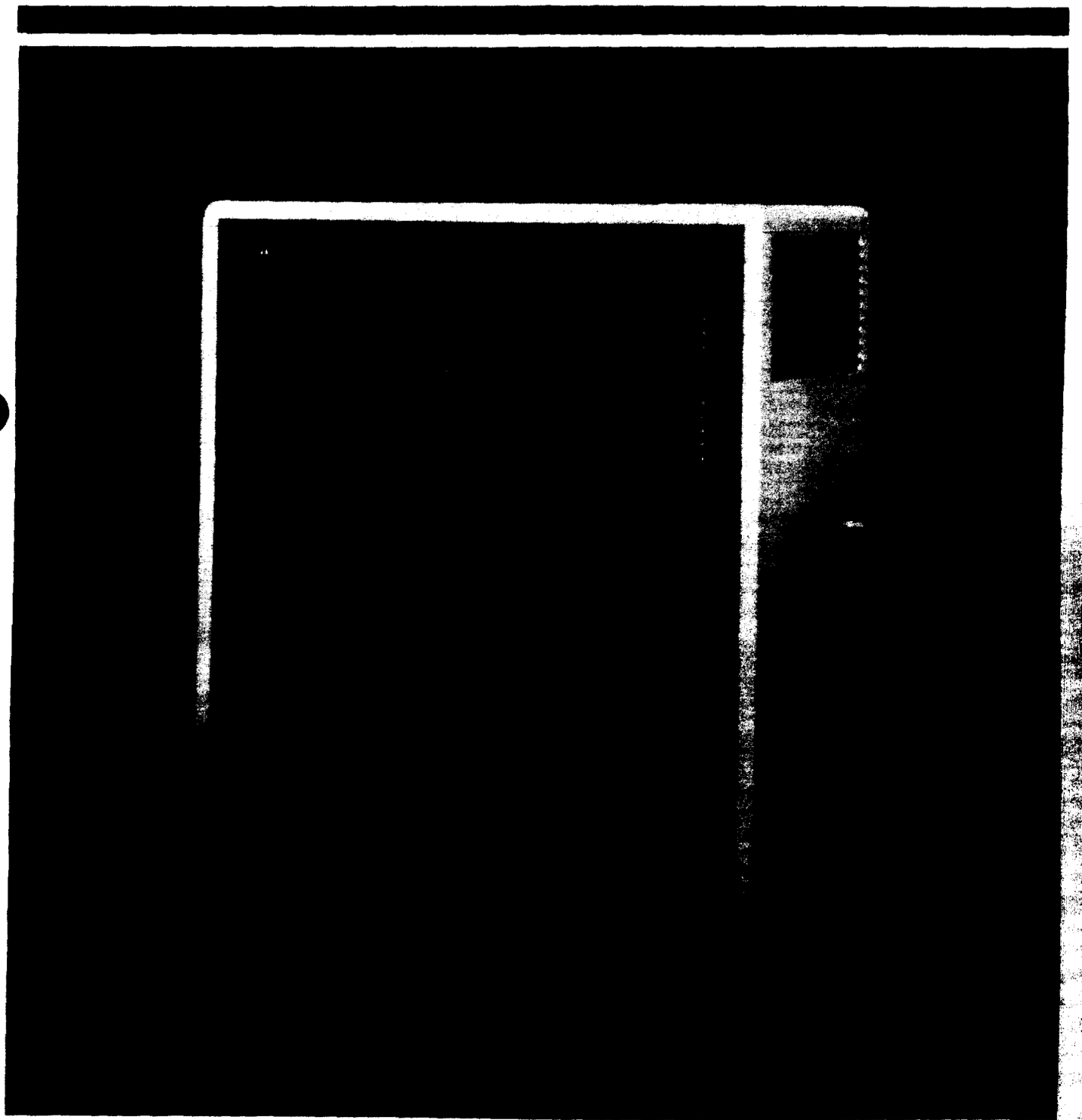
MOTOROLA

MSR 2000 Base Station And Repeater



MSR 2000 Base Station and Repeater

Performance Specification
General

Model	Frequency (MHz)	Minimum RF Output Power	Maximum P.A. Final Input Power	Input Voltage	Input Power Requirements (varies with options)****				
					AC Power @120V AC		13.6V DC Negative Ground Battery Drain		AC Input Current
					Stby.	Xmit.	Stby.	Xmit.	Xmit.
C74GSB	450-470 470-494 494-512	100W** 85W*** 85W***	270W	120V AC +10%, −20% 60 Hz Standard	70W	530W	0.6A	28.3A	4.8A

**Variable down to 50W ***Variable down to 45W ****Does not include current drain during battery charging

No. of Frequencies:	Single and two-frequency stations (DC & Tone Remote) (Repeaters are single frequency only) Four-frequency stations (Tone remote only)
Squelch Options:	Carrier squelch, "Private-Line" coded squelch, and "Digital Private-Line" coded squelch.
Metering:	Optional internal-mounted meter used to measure all essential circuits for tuning and checking.
Dimensions:	29.30" x 20.75" x 10.00"
Weight:	111 lbs (Minimum Configurations)

Transmitter — 450-512 MHz

RF Output Power:	100-50 watts (450-470 MHz) 85-45 watts (470-512 MHz) (continuously variable)*
Output Impedance:	50 ohms
Oscillator Frequency Stability:	Channel element maintains oscillator frequency within ±0.0002% from −30°C to +60°C ambient (+25°C reference)
Transmitter Sideband Noise:	−80 dB @ ±30 kHz. −95 dB @ ±1 MHz.
Spurious & Harmonics:	More than 85 dB below carrier.
Modulation:	15F2 and 16F3: ±5 kHz for 100% at 1000 Hz.
Audio Sensitivity:	Remote Telephone Line: −20 dBm max. for 60% max. deviation at 1000 Hz.
FM Noise:	55 dB below 60% system deviation at 1000 Hz.
Audio Response:	+1, −3 dB from 6 dB/octave pre-emphasis, 300-3000 Hz; referenced to 1000 Hz.
Audio Distortion:	Less than 2% at 1000 Hz; 60% system deviation
Frequency Separation:	9 MHz
FCC Designation:	[illegible]FC4634
Licensable under parts 22, 74, [illegible] of FCC rules.	
Authorized Emissions:	[illegible], 16F3, 16F9

*Note: Duty cycle is per EIA specification RS-152B Par. 2.2 13.2 (20% xmit; 80% receive)

Note: EIA specifications per RS-152B, RS-204B and RS-220A
Specifications listed are limit values.
Actual Specifications can be superior to stated limits.

Receiver — 450-512 MHz

Channel Spacing:	25 kHz.	
EIA Modulation Acceptance:	±7 kHz minimum	
Oscillator Frequency Stability:	Channel element maintains oscillator frequency within ±0.0002% from −30°C to +60°C ambient (+25°C reference)	
Sensitivity— 20 dB Quieting:	Without Pre Amp 0.5 µV	With Pre Amp 0.25 µV
EIA SINAD:	0.35 µV	0.20 µV
Intermodulation— EIA SINAD	−85 dB	−80 dB
Spurious & Image Rejection:	100 dB minimum	95 dB minimum
Squelch Sensitivity— Carrier Squelch:	0.20 µV or less at threshold	0.10 µV or less at threshold
Tone-Coded Squelch:	0.30 µV or less	0.17 µV or less
Selectivity EIA SINAD:	−90 dB	−90 dB
Frequency Separation:	2 MHz	
Audio Characteristics— Remote Control Modals:	Telephone Line: Output: +11 dBm @ 600 ohms Response: +1, −3 dB Distortion 3% @ 1000 Hz. Hum & Noise: −55 dB For local service audio: Output Available: 1 W @ 8 ohms Response: +2, −8 dB Distortion: 5% @ 1000 Hz Hum & Noise: −55 dB	
FCC Receiver Cert. #:	ABZ89FR4635	

**½ IF spur rejection degrades to 90dB (85dB with preamp) from 1 MHz to 2 MHz frequency separation

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R3-2-84C

MOTOROLA

MSR 2000

Base Station and Repeater

136-174 MHz—30 Watts
403-430 MHz—30 Watts
450-470 MHz—30 Watts
470-512 MHz—19 Watts

MSR 2000 Base Station and Repeater

Performance Specifications
General

Model	Frequency (MHz)	Minimum RF Output Power	Input Voltage	INPUT CURRENT (AMPS)			
				*AC INPUT 120VAC, 60 Hz		*DC INPUT 12VDC BATTERY	
				STBY	XMIT	STBY	XMIT
ACC43KSB____ ACC44KSB____	136-174 403-430 450-470	30 Watts	120VAC +10%, −20% 60 Hz Standard	0.5	1.5	0.4	8.0
	470-512	19 Watts					

*Does not include current for battery trickle charge OPTION.

No. of Frequencies:	Single frequency stations (DC & Tone Remote only); Four frequency stations (tone remote only)
Squelch Options:	Carrier squelch, "Private-Line" coded squelch, and "Digital Private-Line" coded squelch
Metering:	Optional internal-mounted meter used to measure all essential circuits for tuning and checking.
Dimensions:	24.05" × 20.75" × 10.00"/61.1 × 52.7 × 25.4 cm
Weight:	106 lb (48 kg) including packing

Transmitter

	136-174 MHz VHF	403-430 MHz 450-470 MHz UHF	470-512 MHz UHF
RF Output Power:	30 watts continuous duty		
Output Impedance:	50 Ohms		
Oscillator Frequency Stability:	Channel element maintains oscillator frequency within ±0.0005% for VHF and ±0.0002% for UHF from −30° C to +60° C ambient (+25° C reference)		
Transmitter Sideband Noise:	−90 dB @ ±30 kHz, −100 dB @ ±1 MHz	−80 dB @ ±30 kHz, −95 dB @ ±1 MHz	−77 dB @ ±30 kHz, −92 dB @ ±1 MHz
Spurious & Harmonics:	More than 85 dB below carrier		More than 82 dB below carrier
Modulation:	15F2 and 16F3: ±5 kHz for 100% at 1000 Hz		
Audio Sensitivity: with Remote Control Option	Remote Telephone Line: −20 dBm max. for 60% max. deviation at 1000 Hz		
FM Noise:	55 dB below 60% system deviation at 1000 Hz		
Audio Response:	+1, −3 dB from 6 dB/octave preemphasis, 300-3000 Hz, referenced to 1000 Hz		
Audio Distortion:	Less than 2% at 1000 Hz, 60% system deviation		
Frequency Separation:	3 MHz VHF 9 MHz UHF		

Receiver

	136-174 MHz VHF	403-430 MHz 450-470 MHz 470-512 MHz UHF
Channel Spacing:	30 kHz/25 kHz	25 kHz
EIA Modulation Acceptance:	± 7 kHz minimum	
Oscillator Frequency Stability:	Channel element maintains oscillator frequency within ±.0005% for VHF and ±.0002% for UHF from −30° C to +60 °C ambient (+25 °C reference)	
Sensitivity— 20 dB Quieting:	Without Pre-Amp 0.5 μV	
EIA SINAD:	0.35 μV	
Intermodulation— EIA SINAD:	−85 dB	
***Spurious & Image Rejection:**	100 dB minimum	
Squelch Sensitivity— Carrier Squelch:	0.20 μV or less at threshold	
Tone-Coded Squelch:	0.20 μV or less	
Selectivity EIA SINAD:	−100 dB	−90 dB
Audio Characteristics— with Remote Control Option:	Telephone Line: Output: +11 dBm @ 600 Ohms Response: +1, −3 dB Distortion 3% @ 1000 Hz Hum & Noise: −55 dB For local service audio: Output Available: 1 W @ 8 Ohms Response: +2, −8 dB Distortion: 5% @ 1000 Hz Hum & Noise: −55 dB	
Frequency Separation:	2 MHz VHF and UHF	

*For UHF Stations: ½ IF spur rejection degrades to 90 dB from 1 MHz to 2 MHz frequency separation.

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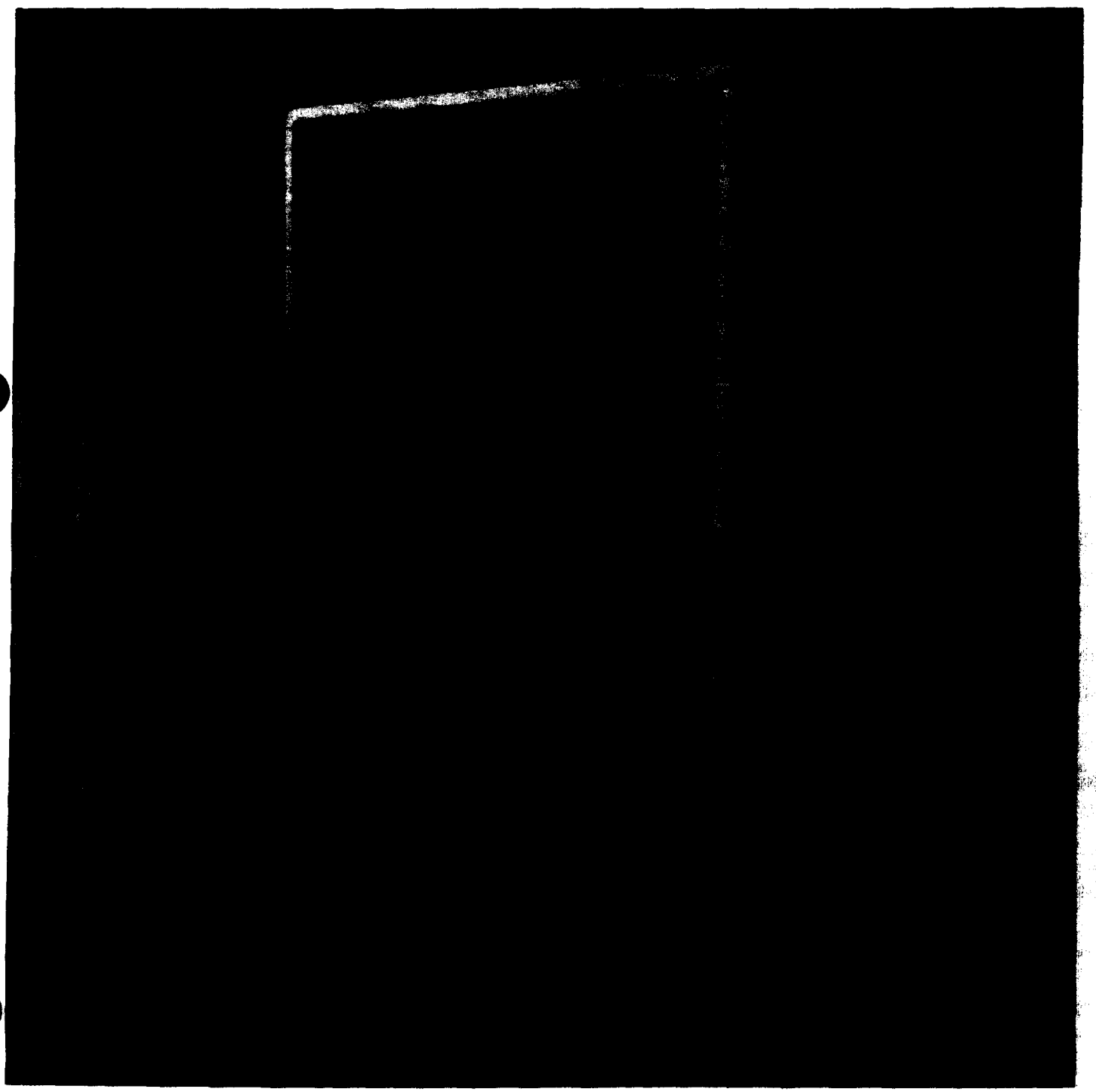
MSR 2000 Base Stations And Repeaters

Free Standing

132-174 MHz
100-50 Watts Variable
Continuous Duty



MSR 2000 Continuous Dutv Base Station

Eq. Cat. Sec. Item

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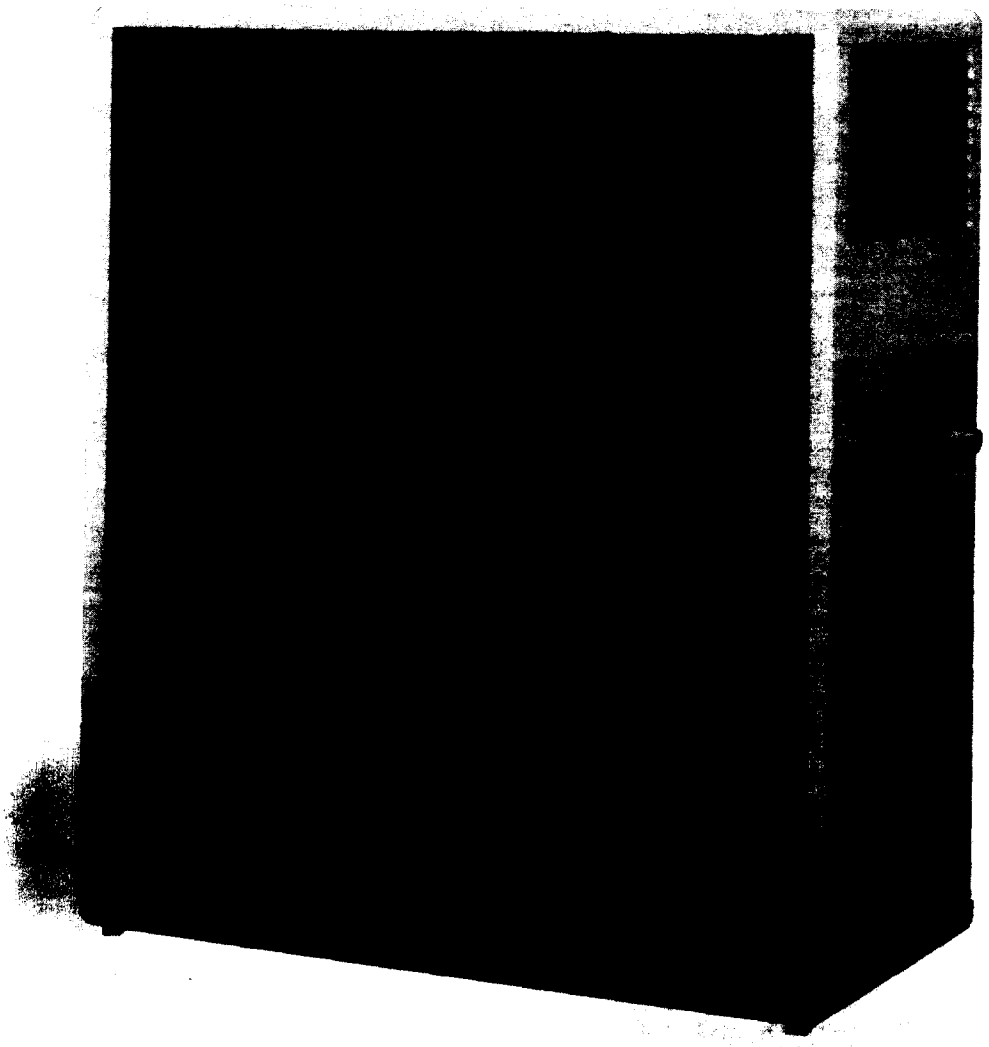
MSR 2000 Base Station

Free Standing
146-174 MHz
110-60 Watts Variable
Intermittent Duty



MSR 2000 Intermittent Duty Base Station

Performance Specification
General

Model	Frequency (MHz)	Minimum RF Output Power	Maximum P.A. Final Input Power	Input Voltage	Input Power Requirements (Varies with Options)**				
					AC Power @120V AC		13.6V DC Neg ground Battery Drain		AC Input Current
					Stby	Xmit	Stby	Xmit	Xmit
C73GSB	146-174	110W*	290W	120V ac +10%, −20% 60 Hz Standard	70W	454W	.6A	22.7A	4.0A

*Variable down to 60 W **Does not include current drain during battery charging.

No. of Frequencies:	Single and two-frequency stations (dc & tone remote) Four-frequency stations (tone remote only)
Squelch Options:	Carrier squelch, Private-Line coded squelch, and Digital Private-Line coded squelch.
Metering:	Optional internal-mounted meter used to measure all essential circuits for tuning and checking.
Dimensions:	29.30″ x 20.75″ x 10.00″
Weight:	109 lbs (Minimum Configurations)

Transmitter — 146-174 MHz

RF Output Power:	110-60 watts intermittent duty (continuously variable)
Output Impedance:	50 ohms
Oscillator Frequency Stability:	Channel element maintains oscillator frequency within ±.0005% (±.0002% optional) from −30°C to +60°C ambient (+25°C reference)
Transmitter Sideband Noise:	−90 dB @ ±30 kHz. −105 dB @ ±1 MHz.
Spurious & Harmonics:	More than 85 dB below carrier.
Modulation:	15F2 and 16F3: ±5 kHz for 100% at 1000 Hz.
Audio Sensitivity:	Remote Telephone Line: −20 dBm max. for 60% max. deviation at 1000 Hz.
FM Noise:	55 dB below 60% system deviation at 1000 Hz.
Audio Response:	+1, −3 dB from 6 dB/octave pre-emphasis, 300-3000 Hz; referenced to 1000 Hz.
Audio Distortion:	Less than 2% at 1000 Hz; 60% system deviation
FCC Designation:	ABZ89FC3632 (±.0005% stability) ABZ89FC3632C (±.0002% stability) Licensable under parts 22, 74, 81, and 90 of FCC rules.
Authorized Emissions:	15F2, 16F3, 16F9, 3.4F2, 3.4F9, 5.6F2, 5.6F9
Frequency Separation:	3 MHz

Receiver — 146-174 MHz

Channel Spacing:	30 kHz/25 kHz	
EIA Modulation Acceptance:	±7 kHz minimum	
Oscillator Frequency Stability:	Channel element maintains oscillator frequency within ±.0005% (±.0002% optional) from −30°C to +60°C ambient (+25°C reference)	
Sensitivity—	Without Pre-Amp	With Pre-Amp
20 dB Quieting:	0.5 μV	0.25 μV
EIA SINAD:	0.35 μV	0.20 μV
Intermodulation— EIA SINAD	−85 dB	−80 dB
Spurious & Image Rejection:	100 dB minimum	100 dB minimum
Squelch Sensitivity— Carrier Squelch:	0.20 μV or less at threshold	0.10 μV or less at threshold
Tone-Coded Squelch:	0.20 μV or less	0.15 μV or less
Selectivity EIA SINAD:	−100 dB	−95 dB
Audio Characteristics— Remote Control Models:	Telephone Line: Output: +11 dBm @ 600 ohms Response: +1, −3 dB Distortion 3% @ 1000 Hz. Hum & Noise: −55 dB For local service audio: Output Available: 1 W @ 8 ohms Response: +2, −8 dB Distortion: 5% @ 1000 Hz Hum & Noise: −55 dB	
FCC Receiver Cert. # :	ABZ89FR3633	
Frequency Separation:	2 MHz	

Note: EIA specifications per RS152B, RS204B and RS220A
Specifications listed are limit values.
Actual Specifications can be superior to stated limits.

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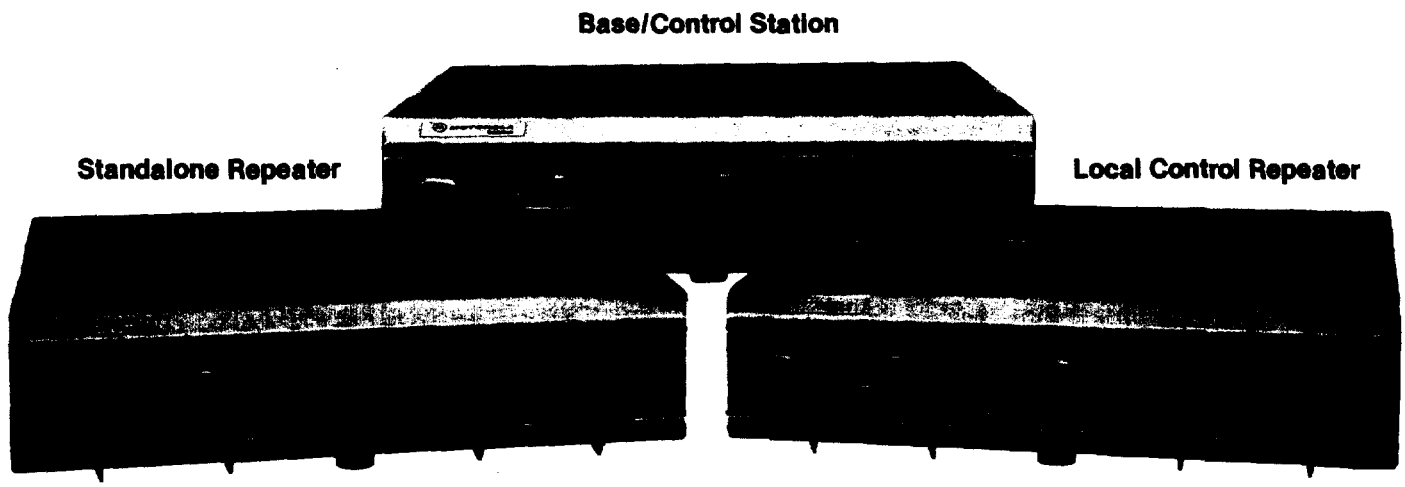
DeskTrac™

Conventional Desktop Stations

Low Band 29.7-50 MHz (Base/Control Station)
VHF 136-162, 146-174 MHz (Base/Control Station/Repeater)
UHF 403-430, 449-470 MHz (Base/Control Station/Repeater)
800 MHz (Control Station/Repeater)



Base/Control Station

- Choice of Power Levels
- 16 Synthesized Channels
- Multiple Coded Squelch
- User-Programmable Scan
- Telephone Interconnect Capability
- Transmit Audio Monitor
- Local Control
- Digital, DC, or Tone Remote Control Options
- "Stat-Alert" Signalling
- Extended Duty Cycle Option
- "Command Series" Local Desk Set Interface
- Scan Talkback

Repeater

- 60% Extended Duty Cycle; Continuous Duty in 800 MHz
- Battery Reverting Option
- Local /Tone Remote Control
- Field Programmable
- Telephone Interconnect Capability

DeskTrac™ Conventional Base Station/Control Station/Repeater

Base Station/Control Station ONLY Features/Advantages

Choice of Power—The DeskTrac station is available in either high or low power models in High Band, UHF, and 800 MHz frequency bands, 45W in Low Band, and 2W in UHF. Refer to Performance Specifications for specific power output choices.

You can choose the DeskTrac station that will provide the coverage you'll need to communicate to field units effectively.

Numeric Display—Large, easy to read 2-digit LED display indicates which channel is in use.

A quick glance provides immediate indication of channel selection.

Talkaround Operation—DeskTrac stations provide talkaround operation, letting you bypass repeaters and communicate directly with field radios. Low Band, VHF and UHF standard frequency stability meets FCC requirements for a "base station." 800 MHz stations require an FCC waiver for talkaround.

Talkaround operation gives you added communications flexibility to talk directly with other users in varying proximities to a repeater.

Multiple Coded Squelch Capability—You may mix both Private-Line and Digital Private-Line squelch codes in the same radio unit.

When you operate with coded squelch, only those users with the same code may hear a conversation. Mixing both types of squelch allows operation on different repeater systems. The station can be configured to transmit to all field units while receiving each unit with a different squelch code. The multiple coded squelch feature gives you greater flexibility in system design and coverage capability.

Flexible Scanning—You can create a scan list of your DeskTrac station's channels. Two channels can be designated as first and second priority within the scan list. The scan search will alternate between the Priority channels and all other modes. Field programmable "talk-back" scan allows you to stay on an active channel in the scan list to transmit immediately without exiting the scanning function. "Nuisance Delete" allows you to temporarily remove an unwanted mode from your scan list.

User-programmable Scan lets you customize a scan list that incorporates the channels that are important to you, helping assure that you won't miss vital messages when they could come from multiple systems. And the radio scans silently, so you won't be distracted by heavy traffic that doesn't relate to you.

Extended Duty Cycle (Option)—60% duty cycle is available as an option to extend the normal intermittent 20% on/80% off radio duty cycle. A field-adjustable Time-out Timer automatically shuts off the transmitter after a predetermined interval. The radio alerts the operator with an audible tone before disconnecting. When ordering you must order the low power option (L377). Refer to Performance Specifications for model availability.

You can increase your DeskTrac radio's usefulness during busy times and ensure its protected operation in emergencies with Extended Duty Cycle.

DC or Tone Remote Control—An option to the DeskTrac which allows Dispatchers to operate the radio from a remote location. All remote functions are field programmable.

Base Station/Control Station/Repeater SHARED Features/Advantages

Easy Field Programmability—The DeskTrac features a reprogrammable internal memory which can be accessed through the microphone connector with a personal computer and appropriate software.

Programmability allows you to alter your radio as often as you require . . . without having to disturb the cabinet or replace the PROM. This can mean less downtime should your DeskTrac station ever need servicing. The programmable DeskTrac radio can easily adapt as your communication needs grow.

High Audio Quality—The DeskTrac station and Local or Local/Tone Remote repeater provide high quality audio through a 3 watt speaker mounted in the front panel.

Motorola is a recognized leader in high quality audio clarity. DeskTrac's clear, crisp sound helps provide reliable communications in a variety of fixed or working environments.

Telephone Interconnect/Accessory Interface—The standard rear panel accessory connector is compatible with MRTI interconnects for access to the PSTN. It can also accommodate a Paging Encoder or "Command Series" Local Desk Set. An external speaker can be employed via an additional accessory connector located on the back.

DeskTrac can grow with your communication needs and works with a variety of accessories. DTMF-equipped mobiles and portables can make or receive telephone calls via the station instead of stopping along the way to use a telephone.

Battery Reverting—Automatic changeover to a 12VDC power source with trickle charger is available.

Battery backup ensures continued communications in the event of an AC power failure while protecting the battery from becoming discharged. The station is protected from AC power interruptions which may occur during routine emergency generator testing.

Dispatcher Conveniences—A customized set of dispatcher aids can be connected to the local control point. Choose from the following options: front panel condenser microphone (standard on base/control stations and local and local/Tone Remote Control versions of repeater), desk microphone, swan neck microphone, boom microphone, headset, handset and footswitch. A Clock/VU Meter is available.

The DeskTrac stations have the versatility to make dispatching convenient and efficient in your environment. Think what hands-free operation could do in your operation!

Low Profile Styling—The DeskTrac is appealing in design and compact in size. The cabinet housing extends over the entire radio length with no metal heat sink protruding. Wall mounting is also possible.

Attractive enough for any office or business setting, the DeskTrac can be adapted to your surroundings as you prefer.

Microprocessor Integration—Virtually all radio functions are controlled by an advanced CMOS microprocessor and specially designed integrated circuits. This sophisticated circuitry allows automatic modulation control for clear, crisp transmissions.

Innovative microprocessor control of key circuits helps provide automatic operation of most internal functions for consistent performance and reliability.

Operational Safeguards—We've designed in Power Amplifier thermal protection to help provide longer equipment life. You receive antenna mismatch protection (and also built-in reverse polarity protection for the repeater) to help assure correct installation and reliable performance throughout the life of your radio.

The DeskTrac is designed to be operated safely and reliably for years to come.

Motorola's Reliability—During the design stage, the DeskTrac radio has passed many stringent tests to help enhance the quality of the final product. An Accelerated Life Test (ALT) simulates 5 years of field use, helping to provide reliable, long-life performance.

When you purchase Motorola's DeskTrac stations you can count on our years of experience as a recognized leader in radio communications. Your station will perform reliably for years to come.

Base Station/Control Station ONLY (Continued) Features/Advantages

"Stat-Alert" Signalling—A part of Motorola Stat-Alert systems, the standard DeskTrac desktop station will display Emergency and PTT IDs of transmitting units, can send and receive Call Alert (equivalent to a tone only page) and Selective Call (equivalent to a tone and voice page) signals. Data Operated Squelch is included. Quik-Call II is also available via field programming.

The local control desktop operator will automatically see who is on the air. Data Operated Squelch eliminates the annoyance of hearing ID's on the channel. In addition, the desktop operator may selectively call a properly-equipped subscriber or send it a page with the message saved in the target radio.

Digital Remote Control—With this option, the DeskTrac can be connected to the DGT9000D Desktop Controller to allow your dispatcher to control ALL functions of the radio from multiple locations. In addition to the standard channel select, transmit, and monitor commands, the DeskTrac remote can also control SCAN ON/OFF (activates or deactivates scan operation), RESET (used to return the radio to normal mode operation from special displays such as "Emergency") and SCAN TALKBACK CHANNEL TRANSMIT (ability to key the transmitter on the radio's busy channel while in scan mode).

Digital Remote Control provides your Dispatcher with a means to control all radio functions without having to be at the unit and no field programming of the radio is necessary.

Transmit Audio Monitor—A feature of the DeskTrac which allows the local operator to hear remote transmit audio, and allows the remote operator to hear the local transmit audio.

Dispatchers from local and remote points can hear both sides of a conversation on the channel.

Conventional Repeater ONLY Features/Advantages

Choice of Remote Control Type—In addition to standalone repeater operation, Local or Local/tone remote control are available as options. Plus it is possible to add a "Command Series" Local Desk Set or T5600 Series Desktop Controller to the repeater's accessory connector to facilitate yet another control point.

The DeskTrac repeater's remote control brings the radio system closer to more users. The repeater can be used as a one-channel base station either via the front panel Base/Repeater button or remotely from a tone remote Desk Set with Set-Up/Knock-Down.

Extended Duty Cycle—60% Transmit duty cycle is provided standard (EIA "Intermittent Duty" is 20% on/80% off). A field-adjustable Time-out Timer automatically shuts off the transmitter after a predetermined interval. The repeater alerts the operator with an audible tone before disconnecting (Not available on VHF Range 1.) The 800 MHz model operates at Continuous Duty; therefore the Time-out Timer is disabled.

You can increase your DeskTrac radio's usefulness during busy times and ensure its protected operation in emergencies with Extended Duty Cycle (Continuous Duty at 800 MHz). It enhances reliable, continued communications especially for longer telephone interconnect calls.

DeskTrac™ Conventional Repeater

Performance Specifications

General

Band:	VHF		UHF			800 MHz
Model:	**L43SUM7000__T**	**L43SUM7000__T**	**L24SUM7000__T**	**L44SUM7000__T**	**L44SUM7000__T**	**L35SUM7000__T**
Frequency (MHz):	136-162	146-174	449-470	403-430	449-470	Tx 851-870/Rx 806-825
RF Output Power:	25 W		2 W	25 W		10 W
Input Voltage:	110/220 VAC 50-60 Hz (13.8 VDC Opt.)					
Typical Current Drain at 13.8 VDC:						
Receive (5W):	1.5A	1.9A	1.9A	1.9A	1.9A	1.8A
Transmit:	10.0A	11.5A	3.3A	9.5A	9.5A	8.5A
Standby:	0.8A	0.8A	0.8A	0.8A	0.8A	0.8A
Channel Capacity:	1					
Frequency Stability:	±0.0005%		±0.00025%			±0.00015%
Operating Temperature:	−30°C to +60°C					
Size (H x W x L):	4.25" x 15" x 16"					
Weight:	19.9 lbs. (9 kg)					24.3 lbs. (11 kg)
FCC Type Acceptance:	ABZ89FT3712 150.8-162 MHz	ABZ89FT3730 146-174 MHz	ABZ89FT4765	not applicable	ABZ89FT4771 449-470 MHz	ABZ89FT5753
FCC Rules:	Part 90	Parts 22, 74, 90	Part 90	not applicable	Parts 22, 74, 90, 95	Part 90

Transmitter

RF Output:	25 W		2 W	25 W		10 W
Modulation:	16K0F3E, 16K0F1D, 15K0F2D					
Duty Cycle:	Transmit - 60% on/40% off; Receive 100% (VHF Range 1 Transmit - 20% on/80% off; Receive 100%)					100%
Spurious:	−57 dB		−46 dB	−57 dB		−54 dB

Receiver

Selectivity:	−80 dB		−75 dB			−65 dB
Sensitivity:	0.30 µV 12 dB SINAD					0.40 µV 12 dB SINAD
Intermodulation:	−75 dB					−65 dB
Spurious:	−80 dB		−75 dB			−70 dB

DeskTrac™ Conventional Base Station/Control Station

Performance Specifications

General

Band:	Low	VHF		UHF			800 MHz	
Model Series:	**L51SUM70D0**	**L43SUM70D0**	**L53SUM70D0**	**L24SUM70D0**	**L44SUM70D0**	**L54SUM70D0**	**L35SUM70D0**	**L45SUM70D0**
Typical RF Output:	45 W	25 W	45-25 W Variable	2 W	25 W	40-25 W Variable	15 W	35 W
Frequency (MHz):	29.7-50	136-162	146-174	449-470	403-430/449-470		Tx 806-825, 851-870/Rx 851-870	
Dimensions (H x W x L):	4.25" x 15" x 16"							
Primary Voltage Input:	110/220 VAC, 50/60 Hz or 13.8 VDC							
Weight:	19.9 lbs. (9 kg)							
Typical Current Drain at 13.8 VDC:								
Receive (5W):	1.6A	1.5A	1.5A	1.5A	1.5A	1.5A	1.5A	1.5A
Transmit:	17.0A	9.5A	15.0A	2.5A	9.5A	12.5A	7.5A	15A @ 35 W
Standby:	500mA	400mA	400mA	400mA	400mA	400mA	400mA	400mA
Channel Capacity:	16 Conventional Channels							
FCC Designation:	ABZ89FT1620	ABZ89FT3712 (150.8-162)	ABZ89FT3730	ABZ89FT4765	ABZ89FT4771 (449-470 MHz) not applicable for 403-430 MHz	ABZ89FT4771	ABZ89FT5672	ABZ89FT5709
FCC Rule:	Part 90		Parts 22, 74, 90	Part 90	Parts 22, 74, 90, 95		Part 90	
Squelch Capability:	Private-Line, Digital Private-Line coded squelch and/or carrier squelch							

Transmitter

Spurious & Harmonic Emissions:	– 59 dB	– 57 dB	– 60 dB @ 45 W	– 46 dB	– 57 dB	– 60 dB	– 55 dB	– 59 dB @ 35 W
Frequency Stability: (– 30°C to + 60°C, 25° ref.)	± 0.0005%			± 0.00025%				
Modulation:	16K0F3E, 16K0F1D, 15K0F2D							
Max. Frequency Separation (MHz):	6.3 (29.7-36), 6.0 (36-42), 8.0 (42-50)	26	25	21	27 (403-430), 21 (449-470)		19	
Audio Distortion:	5% measured per EIA							
Duty Cycle: Transmit- 60% on/40% off: Receive 100%:	not available		available @ 25 W	available		available @ 25 W	not available	

Receiver

Channel Spacing:	20 kHz	30 kHz		25 kHz				
Sensitivity 12 dB SINAD:	0.30 µV						0.40 µV	
Intermodulation EIA SINAD:	80 dB	75 dB					68 dB	
Spurious & Image Rejection:	80 dB			75 dB			70 dB	
Selectivity EIA SINAD:	80 dB	75 dB					68 dB	
Audio Output:	3W @ less than 5% distortion							
Frequency Stability: (– 30°C to + 60°C, 25° ref.)	± 0.0005%			± 0.00025%				
Max. Frequency Separation (MHz):	6.3 (29.7-36) 6.0 (36-42) 8.0 (42-50)	26	25	21	27 403-430) 21 (449-470)		19	

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